

REMARKS

Claims 1-6, 8 and 10-26, 28, 30, 33-47 and 49-62, as amended, remain herein.

Applicants appreciate the statements in the Office Action that claims 11-21 are allowed and that claims 7, 9, 39, and 47 would be allowable if rewritten in independent form to include all of the limitations of the independent claim(s) from which they depend.

Claim 1 has been amended to recite all of the limitations of allowable claim 7, and therefore is allowable, and claim 5 has been amended to recite all of the limitations of allowable claim 9, and therefore is allowable. Claims 2-4, 6 and 10, which depend from claim 1 also are allowable, and claim 8, which depends from claim 5 also is allowable.

Claims 22 and 23 have been amended to recite "wherein said containing comprises dissolving the material contributable to emission in a solvent contained in the medium." See applicants' specification, page 37, lines 5-19.

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Claims 33, 34, 37, 42, 43, 45, 52-54 and 58-60 have been amended to recite a medium comprising organic material. See applicants' specification, page 60, lines 2-6.

Claims 52-54 have been amended to recite locating a medium including organic material on an anode or a cathode and making at least a part of the medium including organic material porous. See applicants' specification, page 59, line 25 to page 60, line 24.

Claims 58-60 have been amended to recite locating a medium comprising organic material on an anode or a cathode and roughening a part of the medium including organic material. See claims 58-60, as originally filed, and applicants' specification, page 59, line 25, to page 60, line 24.

Additional editorial changes have been made in claims 1, 2, 5, 6, 8, 10-12, 17, 20-26, 28, 30, 33-37, 40-43, 45, 49-62. Claims 7, 9, 27, 29, 31, 32 and 48, have been cancelled without prejudice or disclaimer.

The term "substantially successive" in claim 1 allows for not only completely continuous structure without interruption but a partially interrupted structure, i.e., an discontinuous

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structure, as described in applicants' specification at page 35, line 21 to page 36, line 13 and shown in applicants' Figs. 2 and 5.

1. Claims 1, 2 and 10 were rejected under 35 U.S.C. §102(b) over Kobayashi et al. JP 11-074083.

Claim 1 has been amended to recite all of the limitations of allowable claim 7, and therefore is allowable, and claims 2 and 10, which depend from claim 1, also are allowable, thereby mooting the rejection.

2. Claims 1-5 and 10 were rejected under 35 U.S.C. §102(b) over Nakano et al. JP 04-357694.

Claim 1 has been amended to recite all of the limitations of allowable claim 7, and claim 5 has been amended to recite all of the limitations of allowable claim 9, and therefore claims 1 and 5 are allowable. Claims 2-4 and 10, which depend from claim 1, also are allowable, thereby mooting the rejection.

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3. Claims 1-6, 8 and 10 were rejected under 35 U.S.C. §102(e) over Choong et al. U.S. Patent 6,114,055.

Claims 1 and 5 are allowable, as discussed herein. Claims 2-4, 6 and 10, which depend from claim 1, also are allowable, and claim 8, which depends from claim 5, also is allowable, thereby mooting the rejection.

4. Claims 22-27, 29, 31-38, 40-46, 48-56 and 58-62 were rejected under 35 U.S.C. §102(b) over Shirasaki et al. U.S. Patent 5,895,692. Claims 27, 29, 31, 32 and 48 have been cancelled, thereby mooting their rejection.

Claims 22 and 23 recite a method for making a light-emitting device including locating a medium on the anode or the cathode and containing material contributable to emission in the medium to form the emission region, wherein the containing includes dissolving the material contributable to emission in a solvent contained in the medium by steaming. This method is nowhere disclosed or suggested in the cited reference.

The Office Action cites Shirasaki '692 as allegedly disclosing material contributable to emission and charge

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transport to be contained in the medium. Actually, Shirasaki '692 discloses applying and diffusing fluorescent pigments into a dispersion medium layer by screen printing or ink-jetting. Shirasaki '692 does not disclose or suggest dissolving the material contributable to emission in a solvent contained in the medium, as recited in claims 22 and 23.

Claims 24-26 recite a method for making a light-emitting device including containing in the medium material contributable to emission and charge transport material. These methods are nowhere disclosed or suggested in the cited reference.

The Office Action cites Shirasaki '692 as allegedly disclosing a method including containing in the medium material contributable to emission and charge transport material. Actually, while Shirasaki '692 describes containing fluorescent pigments (corresponding to applicants' material contributable to emission) in a dispersion medium layer of poly-N-vinylcarbazole serving as a single hole transport layer 16, Shirasaki '692 does not disclose or suggest a method including containing in the medium material contributable to emission and charge transport material.

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Claims 33, 34, 42 and 43 recite a light-emitting device including an emission region or charge transport region between an anode and a cathode, wherein the emission region includes material contributable to emission and a medium including organic material for containing the material, and at least one of an anode side of the emission region and a cathode side of the emission region is made porous or roughened, wherein the porous surface or a region in a vicinity of the surface includes the material contributable to emission. This apparatus is nowhere disclosed or suggested in the cited reference.

The Office Action cites Shirasaki '692 as allegedly disclosing a device having an emission region between the anode and cathode, wherein one side of either the anode or cathode is roughened. Actually, Shirasaki '692 discloses only porous silicon as a luminescent layer, and does not disclose roughening such a surface of such layer, as recited in applicants' claims. Also such porous silicon is inorganic and not an "organic" material, as recited in applicants' claims. In addition, Shirasaki '692 does not disclose or suggest at least one of an

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anode side of the emission region and a cathode side of the emission region is roughened, as recited in applicants' claims.

Claims 37 and 45 recite a light-emitting device including a charge transport region between an anode and a cathode, wherein the region includes a charge transport material and a medium including organic material for containing the charge transport material. This device is nowhere disclosed or suggested in the cited reference.

Shirasaki '692 discloses only porous silicon as a dispersion medium layer serving as a hole transport layer, and does not disclose roughening a surface of such layer, or such layer being "organic" as recited in applicants' claims.

Claims 52-54 recite a method of making a device including an emission region between an anode and a cathode, the method including locating a medium including organic material on the anode or the cathode, and making at least part of the medium porous. This method is nowhere disclosed or suggested in the cited reference.

Shirasaki '692 discloses porous silicon as a luminescent layer. Shirasaki '692 discloses depositing silicon on an ITO

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electrode and making such silicon layer porous by anodization. However, the pored silicon is not organic, as recited in applicants' claims. Shirasaki '692 does not disclose or suggest locating a medium including organic material on the anode or the cathode, or making at least a part of the medium including organic material porous, as recited in applicants' claims.

Claims 58, 59 and 60 recite locating a medium including organic material on the anode or the cathode, and roughening a part of the medium including organic material.

Shirasaki '692 discloses making a silicon layer porous by anodization. However, such silicon layer is not organic, and therefore, not a medium including organic material, as recited in applicants' claims. Further, Shirasaki '692 does not mention anything about roughening a part of the medium including organic material.

For the foregoing reasons, Shirasaki '692 fails to disclose all elements of applicants' claimed invention, and therefore is not a proper basis for rejection under §102. And, there is no disclosure or teaching in Shirasaki '692 that would have suggested the desirability of modifying any portions thereof

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effectively to anticipate or suggest applicants' presently claimed invention. Claims 35, 36, 40, 41, 50 and 51, which depend from claim 33, are allowable for the same reasons explained herein for claim 33; claim 38, which depends from claim 37, is allowable for the same reasons explained herein for claim 37; claims 44 and 49, which depend from claim 42, are allowable for the same reasons explained herein for claim 42; claim 46 and 47, which depend from claim 45, are allowable for the same reasons explained herein for claim 45; claims 55-57, which depend from claim 53, are allowable for the same reasons explained herein for claim 53; claims 61 and 62, which depend from claim 59, are allowable for the same reasons explained herein for claim 59. Accordingly, reconsideration and withdrawal of this rejection are respectfully requested.

5. Claims 22-30 and 32 were rejected under 35 U.S.C. §102(b) over Nagai et al. U.S. Patent 5,702,833. Claim 32 has been cancelled, thereby mooting its rejection.

Claims 22 and 23 recite a method for making a light-emitting device including locating a medium on the anode or the

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cathode and containing material contributable to emission in the medium to form the emission region, wherein the containing includes dissolving the material contributable to emission in a solvent contained in the medium. This method is nowhere disclosed or suggested in the cited reference.

Nagai '833 discloses an oxadiazole compound of formula (I) or (II) is made into a thin film by vacuum deposition or "solution coating method." Also, Nagai '833 discloses dispersing a hole-transporting low-molecular material (corresponding to applicants' charge transport material), and a compound of formula (I) or (II) capable of providing electron-transporting properties (corresponding to applicants' charge transport material) such as poly(methyl methacrylate) or bisphenol A polycarbonate which is "soluble in a solvent", with the amount ratios being properly adjusted.

As can be seen from such descriptions, Nagai '833 does not disclose the technique of disposing a medium and then containing therein material contributable to emission and charge transport material, and instead, discloses the technique of mixing in advance a polymer, a material contributable to emission and

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charge transport material, and using such mixture to form an emission layer by a solution coating method. That is, Nagai '833 does not disclose or suggest containing in a medium by steaming a solvent in which the material contributable to emission is dissolved, as recited in applicants' claims.

Claims 24-26 recite a method for making a light-emitting device including containing in the medium material contributable to emission and charge transport material. This method is nowhere disclosed or suggested in the cited reference.

The Office Action cites Nagai '833 as allegedly disclosing containing in the medium material contributable to emission and charge transport material. Actually, as discussed herein above, Nagai '833 discloses the technique of mixing in advance a polymer, material contributable to emission and charge transport material, and using such mixture to form an emission layer by a solution coating method. That is, Nagai '833 does not disclose or suggest containing in a medium by steaming a solvent in which the material contributable to emission is dissolved, as recited in applicants' claims.

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For the foregoing reasons, Nagai '833 fails to disclose all elements of applicants' claimed invention, and therefore is not a proper basis for rejection under §102. And, there is no disclosure or teaching in Nagai '833 that would have suggested the desirability of modifying any portions thereof effectively to anticipate or suggest applicants' presently claimed invention. Claims 28 and 30, which depend from claim 24, are allowable for the same reasons explained herein for claim 24. Accordingly, reconsideration and withdrawal of this rejection are respectfully requested.

6. Claims 33-36, 40, 42-44, 48, 50-52 and 58 were rejected under 35 U.S.C. §102(b) over Shirasaki JP 08-279628. Claim 48 has been cancelled, thereby mooting its rejection.

Claims 33, 34, 42 and 43 recite a light-emitting device including an emission region or charge transport region between an anode and a cathode, wherein the region includes material contributable to emission and a medium including organic material for containing the material, at least one of an anode side of the emission region and a cathode side of the emission

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region is made porous or roughened, wherein the porous surface or a region in a vicinity of the surface includes the material contributable to emission. This apparatus is nowhere disclosed or suggested in the cited reference.

Shirasaki JP '628, Fig. 1, shows an electroluminescent element in which a hole transfer layer 14 is formed on conductive layer 13 and electron transfer layer 15 is formed on hole transfer layer 14. Also, Shirasaki JP '628, paragraph 0009, describes a plurality of electrons injected from electron transfer layer 15 and holes from hole transfer layer 14 recombining at the interface. That is, the electroluminescent region of Shirasaki JP '628 is the interface of hole transfer layer 14 and electron transfer layer 15. Also, Shirasaki JP '628, claim 4, claims that the hold transfer layer is made of amorphous silicon.

As can be seen from the above descriptions, Shirasaki JP '628 discloses interface of hole transfer layer 14 and electron transfer layer 15 at least including amorphous silicon forming the hole transfer layer. This amorphous silicon is obviously

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"inorganic," and not "a medium comprising organic material, as recited in applicants' claims.

Shirasaki JP '628 does not disclose or suggest at least one of an anode side of the emission region and a cathode side of the emission region is roughened, or the emission region including organic material contributable to emission, as recited in applicants' claims.

Claims 37 and 45 recite a light-emitting device including a charge transport region between an anode and a cathode, wherein the region includes a charge transport material and a medium including organic material for containing the charge transport material. This device is nowhere disclosed or suggested in the cited reference.

Shirasaki JP '628 discloses depositing silicon on an ITO electrode and making such silicon layer porous by anodization. However, the pored silicon is not organic, as recited in applicants' claims. Shirasaki JP '628 does not disclose or suggest locating a medium including organic material on the anode or the cathode, or making at least a part of the medium

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including organic material porous, as recited in applicants' claims.

Claim 58 recites locating a medium including organic material on the anode or the cathode, and roughening a part of the medium including organic material. This apparatus is nowhere disclosed or suggested in the cited reference.

Shirasaki JP '628 discloses making a silicon layer porous by anodization. However, such silicon layer is not organic, and therefore, not a medium including organic material, as recited in applicants' claims. Further, Shirasaki JP '628 does not mention anything about roughening a part of the medium including organic material.

For the foregoing reasons, Shirasaki JP '628 fails to disclose all elements of applicants' claimed invention, and therefore is not a proper basis for rejection under §102. And, there is no disclosure or teaching in Shirasaki JP '628 that would have suggested the desirability of modifying any portions thereof effectively to anticipate or suggest applicants' presently claimed invention. Claims 35, 36, 40, 41, 50 and 51, which depend from claim 33, are allowable for the same reasons

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explained herein for claim 33; and claim 44, which depends from claim 42, is allowable for the same reasons explained herein for claim 42. Accordingly, reconsideration and withdrawal of this rejection are respectfully requested.

7. Claims 53 and 57 were rejected under 35 U.S.C. §102(e) over Dobson et al. U.S. Patent 5,265,823.

Dobson '823 discloses making silicon porous by chemical dissolution. However, this technique is similar to Shirasaki '692 in that silicon, which is not "inorganic," is made porous, and Dobson '823 does not describe a medium including organic material, as recited in applicants' claims. Dobson '823 does not disclose or suggest locating a medium including organic material on the anode or the cathode, making at least a part of the medium including organic material porous, or locating material contributable to emission on a porous surface of the medium including organic material, as recited in applicants' claims.

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For the foregoing reasons, Dobson '823 fails to disclose all elements of applicants' claimed invention, and therefore is not a proper basis for rejection under §102. And, there is no disclosure or teaching in Dobson '823 that would have suggested the desirability of modifying any portions thereof effectively to anticipate or suggest applicants' presently claimed invention. Accordingly, reconsideration and withdrawal of this rejection are respectfully requested.

All claims 1-6, 8 and 10-26, 28, 30, 33-47 and 49-62 are now proper in form and patentably distinguished over all grounds of rejection stated in the Office Action. Accordingly, allowance of all claims 1-6, 8 and 10-26, 28, 30, 33-47 and 49-62 is respectfully requested.

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Should the Examiner deem that any further action by the applicants would be desirable to place this application in even better condition for issue, the Examiner is requested to telephone applicants' undersigned representatives.

Respectfully submitted,

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